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THE PRESENT TENDENCIES OF POPULATION IN GREAT BRITAIN WITH RESPECT TO QUANTITY AND QUALITY.

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The problem of the birth-rate is one which has received a great deal of consideration in recent years. There are two chief factors concerned in the matter, the first biological and the second economic. That the economic factor plays a part, I have never had any doubt, but I feel satisfied that it plays second fiddle to the biological factor and as it has received an immense amount of attention, it will not be further discussed. To document the matter fully would require a book, a short synopsis of the main points (as they seem to me), is discussed alone.

The problem presents two aspects, first the actual numbers of births in proportion to the fertile women and secondly the quality of the race brought into being. Man is an animal and therefore must be subject to the same or analogous causes which give rise to changes in the numbers of animals. Among many of the smaller mammals, there are well marked variations in the numbers associated with food supply and epidemic disease, but apart from these, great variations in numbers occur at certain times without any apparent cause. Such an occurrence was the plague of mice in the south of Scotland at the end of last century and these instances are very numerous elsewhere. In many of these cases even after the most careful enquiry, no reason could be assigned for the variation. Parasitic micro-organisms also assume infective and lethal properties at times with very disastrous results; (such was the epidemic of influenza in the autumn of 1918,) and then, for long periods, seem to loose much of their power of affecting man. I think man must be subject to the same laws. Take for instance the emigrations of the Norse during the 8th to the 10th centuries. Here ship after ship of emigrants colonised and established Kingdoms in England and in the west of Europe. These emigrations suddenly ceased. It is very difficult to believe that the emigrant

period was not a period of high birth-rate, Norway is a country with no great abundance of food supply, and if the birth-rate had continued at the same level as that during the time of the emigrations, self-preservation would have driven the inhabitants to seek more fertile areas. Of these migrations of population, there are many examples in history. For instance in historical times, or immediately pre-historic, there were three great eruptions of population from the Arabian peninsula. In other words, such rapid increases in the population may be compared to a 'plague' of men.

The rate of increase of the population varies in most nations from time to time. In England this is not the first time that a great increase in the population has taken place, though it is the period at which much the largest increase of population has occurred. A considerable part of this however, is due to the fall of the death-rate. Had the death-rate remained as high as in the 18th century, 30 to 35 per thousand, though the population would have undoubtedly increased very markedly and in an unique manner, the existing phenomena would not have occurred. There is ample evidence that there were very considerable increases of the population in England during the reigns of the early Edwards in spite of the Great Plague, and later in the times of Henry VIII. and Elizabeth the population doubled itself.

The quality of the population now demands a few remarks. Everywhere in history the quality of the population has varied in a very remarkable way. The great days of Athens were due to an outburst of genius within fifty years which is not known to have been equalled in the history of the world. The twin galaxies of eminent men in modern Italy were both the birth product of but 50 years. The first contained Dante, Boccaccio, Giotto, etc., the second, Ariosto, Da Vinci, Machael Angelo and many others. In like manner, the great names in English literature occur. In the 14th century Wyclyffe, Chaucer, Langland and Gower were all born within a few years of one another. In the Shakespearean age, the group of great men containing Spenser, Bacon, Shakespeare, Marlowe, Milton, etc., and lastly the group containing Wordsworth, Shelley, Byron, Keats, etc., were all born likewise within fifty consecutive years. I do not say that great men do not occur at other times but they occur distributed much more sparsely. Take any book such as Nicol's Tables of European History and consider the distribution of the names he marks as distinguished, it is at once obvious that they group themselves around narrow periods in a remarkable manner.

I feel inclined to associate quantity with quality and I think it well marked in the history of England. In support of this view that a high birth-rate is associated with the birth of eminent men, I may point out that in the 18th century between 1710 and 1728, there were born in Scotland David Hume, Tobias Smollet. Adam Smith, William Collins, Thomas Reid, William Robertson, James Hutton, William and John Hunter and Joseph Black, while at the same time Immanuel Kant whose grandparents were Scottish was born in Germany. This was a period of higher birth-rate in Scotland than the years preceding or following. The births in the selected parishes of Scotland given in the 1801 Census for Great Britain are as follows-:—

Years.	*Baptisms Males and Females.*
1700	3,125
1710	3,661
1720	4,146
1730	3,902
1740	3,643

We now come to the discussion of the fall of the birth-rate which has taken place in the last fifty years. The figures given have been calculated by a method which seems to me to be the most satisfactory at the present moment. Many years ago Professor Tait using the Edinburgh and Glasgow figures for 1856 found that the fertility of married women lessened with age in a very regular manner. The chance of a child being born in any year to a married woman between the ages of 15 and 20 years was 0.5 and with each successive five years this was reduced by a definite amount. The figures published for Abedeen 1911 show that the fertility between 15 and 20 years is still 0.5 but the falling off in the fertility is much more rapid and still sensibly constant from five years to five years. The constant of the decline in fertility with age has been calculated for many instances of which a selection is given in the accompanying table. As the constant increases, the birth-rate falls. It will be observed that the fall began over the country at practically the same time. If anywhere it began first in rural Wales but the figures are not sufficiently large to make the fact absolutely certain. In Shetland and Orkney the fall is continuous from 1860. In Shetland the constant describing the fall in fertility, has increased by 55 per cent., whereas in the county of Lanark which includes Glasgow, the constant has only increased 28 per cent. It is to be noted in rural England since 1870, the constant has increased 45 per cent., whereas in the Hampstead and Lewisham districts, in which if anywhere limitation of families is practised, the constant has only increased 38 per cent.

We are thus faced with a problem that I am certain cannot be explained simply by measures of birth control: there is some other factor. It might be thought that as a much larger proportion of the inhabitants of the town are now natives of the town they might have a lower fertility, but the fall is just as great in rural England, so that explanation certainly does not satisfy. The matter at present must remain more or less a mystery but I feel in favour of the view that there is a race physiology behind the matter and that the fall of the birth-rate just now is not essentially different from what must have taken place in England in former times.

TABLE SHOWING THE VALUES OF THE FERTILITY CONSTANT WHICH DESCRIBES THE LOSS OF FERTILITY.

	1860—2		1870—2		1880—2		1890—2		1900—2		1910—2		1920—2	
England, Urban ..			·0670	100	·0697	104	·0762	114	·0846	126	·0939	140	·0980	146
,, Rural ..			·0666	100	·0677	102	·0755	113	·0836	126	·0935	140	·0965	145
Wales, Urban ..			·0637	100	·0661	104	·0667	105	·0727	114	·0844	132	·0946	149
,, Rural ..			·0589	100	·0645	110	·0696	118	·0798	135	·0861	146	·0943	160
Hampstead and Lewisham ..			·0756	100	·0730	97	·0867	115	·0926	122	·1014	134	·1042	138
Shetland	·0535	100	·0561	105	·0566	106	·0583	109	·0694	130	·0784	147	·0827	155
Orkney	·0598	100	·0624	104	·0645	108	·0694	116	·0748	125	·0819	137	·0876	146
Lanark	·0623	100	·0584	94	·0724	116	·0659	106	·0723	116	·0804	129	·0796	128

NOTE:—In this table the values of the fertility constant, that is to say the constant, which must be subtracted from 0·5 to obtain the fertility of married women in the succeeding 5 years of life and so to the age of 45, are shown. The values must be considered only approximate and the comparison with one another in succeeding decades is the only use that can be made of them. The first constant given for each district has been taken as 100 and in the succeeding columns, the ratio of the constant in that column to the first constant calculated is given. There is very considerable similarity in the manner in which the variation has taken place.